



FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. I-2-0455.1US	SERIAL NO. 10/791,244
	APPLICANT Yang et al.	
	FILING DATE March 2, 2004	GROUP 2611

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5,412,620	05/1995	Cafarella et al.			
		5,487,069	01/1996	O'Sullivan et al.			
		5,559,757	09/1996	Catipovic et al.			
		5,577,066	11/1996	Schuchman et al.			
		5,612,978	03/1997	Blanchard et al.			
		5,805,638	09/1998	Liew			
		5,818,868	10/1998	Gaudenzi et al.			
		5,828,658	10/1998	Ottersten et al.			
		5,930,369	7/1999	Cox et al.			
		6,047,020	04/2000	Hottinen			
		6,097,753	08/2000	Ko			
		6,128,276	10/2000	Agee			
		6,137,848	10/2000	Chennakeshu et al.			
		6,141,393	10/2000	Thomas et al.			
		6,144,711	11/2000	Raleigh et al.			
		6,181,714	01/2001	Isaksson et al.			
		6,188,717	02/2001	Kaiser et al.			
		6,219,561	04/2001	Raleigh			
		6,289,005	09/2001	Katz			
		6,321,066	11/2001	Katz et al.			
		6,321,082	11/2001	Katz			
		6,320,903	11/2001	Isaksson et al.			
		6,359,926	03/2002	Isaksson et al.			
		6,359,938	03/2002	Keevill et al.			
		6,363,128	03/2002	Isaksson et al.			

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		6,366,554	04/2002	Isaksson et al.			
		6,377,632	04/2002	Paulraj et al.			
		6,392,595	05/2002	Katz et al.			
		6,396,801	05/2002	Upton et al.			
		6,438,174	08/2002	Isaksson et al.			
		6,445,342	09/2002	Thomas et al.			
		6,456,649	09/2002	Isaksson et al.			
		6,466,629	10/2002	Isaksson et al.			
		6,473,449	10/2002	Cafarella et al.			
		6,473,453	10/2002	Wilkinson			
		6,493,395	12/2002	Isaksson et al.			
		6,505,053	01/2003	Winters et al.			
		6,512,737	01/2003	Agee			
		6,538,986	03/2003	Isaksson et al.			
		6,553,012	04/2003	Katz			
		6,611,855	08/2003	Hellberg et al.			
		6,618,431	09/2003	Lee			
		6,643,526	11/2003	Katz			
		6,658,619	12/2003	Chen			
		6,680,969	01/2004	Molnar et al.			
		6,662,024	12/2003	Walton et al.			
		6,671,334	12/2003	Kuntz et al.			
		6,674,795	01/2004	Liu et al.			
		6,684,065	01/2004	Bult et al.			
		6,693,953	02/2004	Cox et al.			
		6,700,919	03/2004	Papasakellarios			

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		6,724,743	04/2004	Pigeonnat			
		6,729,929	05/2004	Sayers et al.			
		6,744,320	06/2004	Nguyen et al.			
		6,745,352	06/2004	Cheng			
		2002/0136158	09/2002	Frank			
		2002/145989	10/2002	De Parthapratim et al.			
		2003/0026201	02/2003	Arnesen			
		2003/0035491	02/2003	Walton et al.			
		2003/0043732	03/2003	Walton et al.			
		2003/0043767	03/2003	Pan et al.			
		2003/0043887	03/2003	Hudson			
		2003/0043925	03/2003	Stopler et al.			
		2003/0048856	03/2003	Ketchum et al.			
		2003/0058952	03/2003	Webster et al.			
		2003/0063557	04/2003	Mottier			
		2003/0072291	04/2003	Brunel			
		2003/0076908	04/2003	Huang et al.			
		2003/0076900	04/2003	Magee et al.			
		2003/0081781	05/2003	Jensen et al.			
		2003/0086366	05/2003	Branlund et al.			
		2003/0099216	05/2003	Nilsson et al.			
		2003/0103584	06/2003	Bjerke et al.			
		2003/0108117	06/2003	Ketchum et al.			
		2003/0112880	06/2003	Walton et al.			
		2003/0123384	07/2003	Agee			
		2003/0125040	07/2003	Walton et al.			

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		2003/0128658	07/2003	Walton et al.			
		2003/0129984	07/2003	Dent			
		2003/0133403	07/2003	Castelain et al.			
		2003/0147655	08/2003	Shattil			
		2003/0152021	08/2003	Wang et al.			
		2003/0165131	09/2003	Liang et al.			
		2003/0185310	10/2003	Ketchum et al.			
		2003/0210752	11/2003	Krupka			
		2003/0215007	11/2003	Mottier			
		2003/0216154	11/2003	Mennenga et al.			
		2003/0227866	12/2003	Yamaguchi			
		2003/0235255	12/2003	Ketchum et al.			
		2004/0032354	02/2004	Knobel et al.			
		2004/0032918	2/2004	Shor et al.			
		2004/0052236	03/2004	Hwang et al.			
		2004/0086027	05/2004	Shattil			
		2004/0086035	05/2004	Upton et al.			
		2004/0087275	05/2004	Sugar et al.			
		2004/0095907	05/2004	Agee et al.			
		2004/0100897	05/2004	Shattil			
		2004/0101046	05/2004	Yang et al.			
		2004/0116077	06/2004	Lee et al.			
		2004/0120274	06/2004	Petre et al.			
		2004/0120424	06/2004	Roberts			
		2004/0136399	07/2004	Roberts			
		2004/0141548	07/2004	Shattil			

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		2004/0142663	07/2004	Roberts			
		2004/0146024	07/2004	Li et al.			
		2004/0240595	12/2004	Raphaeli			

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
		0766468	04/1997	EP				
		1017183	07/2000	EP				
		1047209	10/2000	EP				
		1063780	12/2000	EP				
		1119146	07/2001	EP				
	*	1139632	10/2001	EP				
		1175022	01/2002	EP				
		1255387	11/2002	EP				
		1289182	03/2003	EP				
		1300999	04/2003	EP				
		1303094	04/2003	EP				
		1357693	10/2003	EP				
		1365554	11/2003	EP				
		1379020	01/2004	EP				
		1411693	04/2004	EP				
	*	1992-0009249	05/1992	KR			X**	
	*	1998-702348	07/1998	KR			X**	
	*	20000027178	05/2000	KR			X**	
	*	2003-0034260	05/2003	KR			X**	

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
		95/22859	08/1995	WO				
		95/27349	10/1995	WO				
		96/22638	07/1996	WO				
		97/34421	09/1997	WO				
		97/35384	09/1997	WO				
		97/48192	12/1997	WO				X
		98/09395	03/1998	WO				
		98/10545	03/1998	WO				
		98/10549	03/1998	WO				
		98/10550	03/1998	WO				
		98/10552	03/1998	WO				
		98/10553	03/1998	WO				
		98/10554	03/1998	WO				
		98/10555	03/1998	WO				
		98/18272	04/1998	WO				
		98/36596	08/1998	WO				
		98/36598	08/1998	WO				
		98/36599	08/1998	WO				
		98/37638	08/1998	WO				
		99/49602	09/1999	WO				
		99/62280	12/1999	WO				
		00/11823	03/2000	WO				
		00/52872	09/2000	WO				
		01/10065	02/2001	WO				
		01/33761	05/2001	WO				

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							YES	NO
		01/33791	05/2001	WO				
		01/47202	06/2001	WO				
		01/47203	06/2001	WO				X
		01/53932	07/2001	WO				
		01/54300	07/2001	WO				
		01/54305	07/2001	WO				
		02/29977	04/2002	WO				
		02/054601	07/2002	WO				
		02/054537	07/2001	WO				
		02/061962	08/2002	WO				
		02/067527	08/2002	WO				
		02/073937	09/2002	WO				
		02/080483	10/2002	WO				
		WO/082683	10/2002	WO				
		02/082683	10/2002	WO				
		02/093779	11/2002	WO				
		02/093784	11/2002	WO				
		02/093819	11/2002	WO				
		03/005291	01/2003	WO				
		03/010898	02/2003	WO				
		03/015292	02/2003	WO				
		03/026237	03/2003	WO				
		03/028270	04/2003	WO				
		03/044983	05/2003	WO				
		03/081823	10/2003	WO				

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							YES	NO
		03/084092	10/2003	WO				
		03/092212	11/2003	WO				
		2004/002047	12/2003	WO				
		2004/003743	01/2004	WO				
		2004/008704	01/2004	WO				
		2004/023704	03/2004	WO				
		2004/023704	03/2004	WO				
		2004/032347	04/2004	WO				
		2004/036345	04/2004	WO				
		2004/038984	05/2004	WO				
		2004/059935	07/2004	WO				
		2004/064298	07/2004	WO				

OTHER DOCUMENTS

EXAMINER INITIAL		DESCRIPTION (Including Author, Title, Date, Pertinent Pages, Etc.)
		"Fast Algorithm for Solving Toeplitz Systems of Equations"_IBM Technical Disclosure Bulletin, May 1980, US, Vol. 22. No. 12.
	*	BENVENUTO, "Joint Detection with Low Computational Complexity for Hybrid TD-CDMA Systems," VTC 1999, Fall IEEE VS 50 th Vehicular Technology Conference, Volume 1, September 19-22, 1999, vol.1, pp. 618-622.
		BERETTA ET AL., "Space-Time multiuser detectors for TDD-UTRA". IEEE, Fall 2001.
		GOLUB ET AL., "Matrix Computations," 3 rd Edition, The Johns Hopkins University Press, Baltimore, MD, pp. 201-202, (1996).
		GRAY, "Toeplitz and Circulant Matrices: A Review," available at http://ee.stanford.edu/~gray/toeplitz.pdf

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EXAMINER INITIAL		DESCRIPTION (Including Author, Title, Date, Pertinent Pages, Etc.)
		HAYKIN, "Adaptive Filter Theory", Third Edition, Prentice Hall, 1996, pp. 87-93,
		KAY, "Fundamentals of Statistical Signal Processing: Estimation Theory," Prentice Hall, New Jersey, XP002428399, (1993).
	*	MEYR ET AL., "Digital Communication Receivers: Synchronization, Channel Estimation, and Signal Processing," Wiley Interscience, New York, XP002428398, pp. 700-717, 782-789, (1998).
		SINN ET AL., "Efficient Data Detection Algorithms in Single and Multi-Carrier Systems Without the Necessity of a Guard Period," page 2739, left-hand column, figure 2.
		SUN ET AL., "On the Convergence of the Inverses of Toeplitz Matrices and its Applications," IEEE Transactions on Information Theory, vol. 49, no.1, pp.180-190, (January 2003).
		VOLLMER ET AL., "Comparative Study of Joint-Detection Techniques for TD-CDMA Based Mobile Radio Systems", IEEE Journal on Selected Areas in Communications, Vol. 19, No. 8, August 2001, pp. 1461-1475.
		VOLLMER ET AL., "Joint-Detection using Fast Fourier Transforms in TD-CDMA based Mobile Radio Systems". 1999 (XP-002190679)
		WILLIAMSON ET AL., "Block Decision Feedback Equalization," IEEE Transactions on Communications, IEEE Service Center, Piscataway, New Jersey, vol. 40, no. 2, pp. 255-264, (February 1, 1992).

**English Abstract Only

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